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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,162	09/21/2001	Takahiko Sawada	TOS-146-USA	3033
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Townsend & Banta 601 PENNSYLVANIA AVENUE, N.W. SUITE 900, SOUTH BUILDING Washington, DC 20004			EXAMINER BISSETT, MELANIE D	
			ART UNIT 1711	PAPER NUMBER

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,162

Applicant(s)

SAWADA ET AL.

Examiner

Melanie D. Bissett

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,5,9-13,19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7,8,14-18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1711

1. The rejections based on 35 USC 102 have been withdrawn; however, rejections based on 35 USC 103 have been presented as necessitated by amendment.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 3-4, 7-8, 14-18, and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite a polyurethane layer having a "thickness of no more than 1 μm ." Although the specification supports a thickness of 1 μm , it does not appear to show support for thicknesses less than 1 μm . Examples with thicknesses below 1 μm are not given, and the specification does not provide guidance otherwise to choose thicknesses in the range less than 1 μm .

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. New claim 21 recites the limitation "the thermoplastic saturated norbornene-type resin" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon Zeon in view of Oka et al.

9. Nippon Zeon teaches a sheet of thermoplastic saturated norbornene-type resin laminated onto a PVA polarizer (abstract), where materials including two-component polyurethane adhesives are used to adhere the norbornene sheet to the polarizer [0045]. However, the reference does not teach the thickness of the polyurethane adhesive layers. Oka teaches laminates, where adhesives are used to attach an antireflection film to a polarizing element, including polyvinyl alcohol polarizing elements (col. 31 lines 22-38). Preferred adhesives include one- or two-part urethane adhesives (col. 30 line 65-col. 31 line 14), where the adhesives are applied at a thickness of 0.5-20 μm (col. 26 line 63-col. 27 line 9). The reference teaches that sufficient bond strengths are achieved by the preferred thicknesses. It is the examiner's position that it would have been prima facie obvious to use any thickness of adhesive necessary to optimize

Art Unit: 1711

the bond strength of the adhesive and polarizer while minimizing the amount of adhesive needed for cost purposes.

10. Claims 1 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara in view of Oka et al.

11. Shinohara discloses liquid crystal display panels, where at least one layer contains a norbornene-type resin (abstract). Example 1 shows a film made by bonding two norbornene-type resin layers by a urethane adhesive, where a PVA polarizer is attached to the film. Also, example 3 shows a norbornene-type polymer film laminated with a urethane adhesive and a polarized vinyl alcohol copolymer membrane. Another example shows laminate of a norbornene-type resin protective film, a PVA polarizer film, and an intermediate acrylic adhesive (Reference Example 2). The specification teaches that polyurethane resin solutions are equally suitable adhesives in the invention (col. 9 lines 11-22).

12. However, the reference does not teach the thickness of the polyurethane adhesive layers. Oka teaches laminates, where adhesives are used to attach an antireflection film to a polarizing element, including polyvinyl alcohol polarizing elements (col. 31 lines 22-38). Preferred adhesives include one- or two-part urethane adhesives (col. 30 line 65-col. 31 line 14), where the adhesives are applied at a thickness of 0.5-20 μm (col. 26 line 63-col. 27 line 9). The reference teaches that sufficient bond strengths are achieved by the preferred thicknesses. It is the examiner's position that it would have been prima facie obvious to use any thickness of adhesive necessary to optimize

Art Unit: 1711

the bond strength of the adhesive and polarizer while minimizing the amount of adhesive needed for cost purposes.

13. Claims 3-4, 7-8, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon Zeon in view of Oka et al. as applied to claims 1 and 21 above, and further in view of Oertel.

14. From a prior Office action:

Nippon Zeon applies as above, noting the use of two-component urethane adhesives but failing to discuss the isocyanates or solvents used. Oertel teaches that modified isocyanates, such as those prepolymers formed by reacting an isocyanate with a polyol, are useful in reaction-type adhesives, where PI 1 has light color and low staining under light (p. 596). PI 1 has been noted as a polyisocyanate especially suitable for two-component reaction adhesives, having high reactivity at low temperatures (p. 597). Therefore, it is the examiner's position that it would have been prima facie obvious to use a modified polyisocyanate such as PI 1 in the polyurethane adhesives of Nippon Zeon's invention to provide two-component adhesives having low reaction temperature and low coloration.

Oertel also teaches that dispersion adhesives based on aqueous polyurethane dispersions have more flexibility of use and cause less impact on the environment than organic solvent-based adhesives (p. 607). Wet bonding is possible with aqueous dispersions (11.6.3), and the adhesion to polar substrates is especially good (11.6.4). Thus, it is the examiner's position that it would have been prima facie obvious to choose an aqueous polyurethane dispersion adhesive for Nippon Zeon's invention to provide an environmentally-conscious adhesive having improved adhesion to polar substrates.

Additionally, Oertel teaches that of the commonly used polyols, polyester polyols impart improved adhesion (11.3.2). Therefore, it is the examiner's position that it would have been prima facie obvious to use polyester polyols as a main ingredient in the two-part adhesives to further improve adhesion of the norbornene film to the polarizer.

15. Claims 3-4, 7-8, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. in view of Oka et al. as applied to claims 1 and 21 above, and further in view of Oertel.

Art Unit: 1711

16. From a prior Office action:

Shinohara applies as above, noting the use of urethane adhesives but failing to discuss the isocyanates or solvents used. Oertel teaches that modified isocyanates, such as those prepolymers formed by reacting an isocyanate with a polyol, are useful in reaction-type adhesives, where PI 1 has light color and low staining under light (p. 596). PI 1 has been noted as a polyisocyanate especially suitable for two-component reaction adhesives, having high reactivity at low temperatures (p. 597). Therefore, it is the examiner's position that it would have been prima facie obvious to use a two-component adhesive containing a modified polyisocyanate such as PI 1 in the polyurethane adhesives of Shinohara's invention to provide adhesives having low reaction temperature and low coloration.

Oertel also teaches that dispersion adhesives based on aqueous polyurethane dispersions have more flexibility of use and cause less impact on the environment than organic solvent-based adhesives (p. 607). Wet bonding is possible with aqueous dispersions (11.6.3), and the adhesion to polar substrates is especially good (11.6.4). Thus, it is the examiner's position that it would have been prima facie obvious to choose an aqueous polyurethane dispersion adhesive for Shinohara's invention to provide an environmentally-conscious adhesive having improved adhesion to polar substrates.

Additionally, Oertel teaches that of the commonly used polyols, polyester polyols impart improved adhesion (11.3.2). Therefore, it is the examiner's position that it would have been prima facie obvious to use polyester polyols as a main ingredient in the two-part adhesives to further improve adhesion of the norbornene film to the polarizer.

Allowable Subject Matter

17. Claims 2, 5, 9-13, and 19-20 are allowed.

18. The following is a statement of reasons for the indication of allowable subject matter:

19. The closest prior art, Shinohara et al. (USPN 5,516,456-A), discloses liquid crystal display panels, where at least one layer contains a norbornene-type resin. The resins are bonded to PVA polarizers by urethane adhesives. However, the reference does not mention an additional PVA adhesive used to bond the polarizer to the protection film. The reference also does not mention the applicant's layer structure of

Art Unit: 1711

claim 19 or a layer structure using a non-polarizer polyvinyl alcohol layer. It is the examiner's position that the presence of the non-polarizer PVA layer in the applicant's claimed polarizing plate protection film laminate would provide a novel, unobvious step over the prior art. It is also the examiner's position that the applicant's claimed layer structure of claim 19 would provide a novel, unobvious step over the prior art.

Response to Arguments

20. The applicant has amended the claims to recite an adhesive thickness of no more than 1 μm and argues that articles with the claimed thicknesses have unexpected properties over those articles with adhesives of greater thickness. However, the results are not commensurate in scope with the claims. Where the claims are directed to "no more than 1 μm ", the examples only show a thickness of 1 μm . Thus, the specification does not support unexpected results for thicknesses lower than 1 μm . Furthermore, the results do not sufficiently show that the thickness variable causes the unexpected results. The examples differ by various means (different starting materials, different lamination methods, etc.). Therefore, it cannot be determined that the thickness provides the unexpected results upon which the applicant relies. Also, the criticality for the endpoint 1 μm has not been shown. Do laminates having adhesive thicknesses just above 1 μm have unexpectedly lower degrees of polarization at 60 °C?

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdb



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